

# Program for Nanoengineering and Nanoscience, Graduate School of Advanced Technology, National Taiwan University

## Degree Regulations for the Master's Program

- I. Duration of Study: The minimum and maximum duration of study is 1 to 4 years.
- II. Minimum Graduation Credits: A minimum of 21 credits is required for graduation (excluding Seminar, Special Project, Academic Ethics, and Internship courses).
- III. At least 12 credits of professional electives are required from the program (courses subject to advisor approval).
- IV. Online learning of Academic Ethics is a required course and does not count toward graduation credits.
- V. Credits from undergraduate courses do not fulfill the minimum graduation credit requirements.
- VI. Proportion of English-Taught Courses:
  - i. For students admitted in Fall 2022 or Spring 2023, at least 35% of the minimum graduation credits must consist of English-taught courses; at least 7 credits must be completed.
  - ii. For students admitted in Fall 2023, Spring 2024, Fall 2024, or Spring 2025, at least 50% of the minimum graduation credits must consist of English-taught courses; at least 11 credits must be completed.
  - iii. For students admitted in Fall 2025, Spring 2026, Fall 2026, or Spring 2027, at least 55% of the minimum graduation credits must consist of English-taught courses; at least 12 credits must be completed.
- VII. For any matters not covered, please refer to the regulations of Graduate School of Advanced Technology.

### **Required Curriculum**

<b>必修課程 Required Curriculum</b>		
課程名稱 Course Title	學分 Credit Points	備註 Note
研發實習 Internship	3	必修，一學期 1 semester
專題討論 Seminar	1	必修，在學期間每學期必修，至多修畢(且通過)四學期。 Compulsory every semester during the academic period, with a maximum completion (and passing) of four semesters
專題研究 Special Project	1	必修，在學必修 Every semester
碩士論文 Thesis	0	必修，畢業學期當修 Semester of graduation
學術倫理 Academic Ethics	0	必修，不及格者不得申請學位考試 Students who fail the Academic Ethics are Not eligible to apply Defense

**Required Competency**

必選修課程 (七選一) Required Competency (Choose one out of seven)		
學位 Degree	課程名稱 Course Title	學分 Credit Points
碩博 Ms. Ph.D.	近代物理 Modern Physics	3
	量子力學(一) Quantum Mechanics (I)	3
	量子力學(二) Quantum Mechanics (II)	3
	量子物理 Quantum Physics	3
	奈米科技導論 Introduction to Nanotechnology	3
	奈米科學與工程 Nanoscience and Nanotechnology	2
	精細元件與精密系統 Precision Elements and Systems	3

**Elective Curriculum**

選修課程 Elective Curriculum		
學位 Degree	課程名稱 Course Title	學分 Credit Points
碩博 Ms. Ph.D.	材料化學 Materials Chemistry	3
	高等材料力學 Advanced Strength of Materials	3
	流體力學導論 Fundamental of Fluid Dynamics	3
	光學量測系統原理設計 Design Principle of Optical Measurement System	3
	精密量測 Precision Metrology	3
	半導體智慧製造系統概論 Introduction to Semiconductor Intelligent Manufacturing Systems	3
	壓電系統設計與製造 The Design & Construction of Piezoelectric Systems	3
	壓電振動能量擷取導論 Introduction to Piezoelectric Energy Harvesting	3
	微感測器特論 Special Topics on Microsensors	3

選修課程 Elective Curriculum		
學位 Degree	課程名稱 Course Title	學分 Credit Points
碩博 Ms. Ph.D.	有限元素法 Method of Finite Elements	3
	資料分析方法 Data Analytics	3
	微奈米尺度熱傳 Micro/Nanoscale Heat Transfer	3
	電漿材料製程技術 Plasma Materials Fabrication Technology	3
	生醫奈微米工程 Nano/micro Engineering in Biomedicine	3
	細胞微機電及微流體導論 Introduction to Cellular BioMEMS and Biomicrofluidics	3
	膠體與界面現象 Colloid and Interfacial Phenomena	3
	應用電化學 Applied Electrochemistry	3
	微感測器實務 Practices of Microsensors	3
	奈米材料與應用 Applications of Nanomaterials	3
	能源科學 Energy Science	3
	材料物性分析 Physical Characterizations of Materials	3
	電催化反應導論 Introduction of Electrocatalysis	3
	半導體智慧製造概論 Introduction to Semiconductor Intelligent Manufacturing	3
	半導體設備元件實務 Practice of Semiconductor Equipment Components	1
	半導體製程機台實務 Practice of Semiconductor Manufacturing Tools	1
低維度半導體物理 Low-Dimensional Semiconductor Physics	3	

\* 課程非於每學年開授，請依本校課程資訊與選課系統公告規劃選課。

Please refer to the current course catalog for the actual course offerings each semester.